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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,698	09/04/2001	John Canning	CU-2605-RJS	6218

7590

06/07/2004

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/890,698

Applicant(s)

CANNING ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 March 2004 and 13 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The response of the applicant has been read and given careful consideration. Responses to the arguments are provided after the first rejection to which they are directed. Rejection of the previous office action not repeated below are withdrawn based upon the amendment to the claims and the arguments of the applicant. The majority of the references submitted in the IDS of 9/15/2003 are already of record. A signed copy of the IDS accompanies this office action and the examiner thanks the applicant for pointing to this oversight. The amendment to the specification are approved and do not add any new matter. The amendment of 4/13/04 does not seem to change the language. Did the applicant intend to change "m" to "mm" ?

2. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-20, drawn to a method of laser processing waveguiding devices to augment their optical characteristics.

Group II, claim(s) 21, drawn to a waveguiding device, which has altered optical characteristics.

3. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Any feature which unites the inventions fails to make a contribution over the prior art in view of the references marked X in the PCT search report of 14 March 2000.

4. During a telephone conversation with Richard Streit (25,765) on July 9, 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-20.

Affirmation of this election must be made by applicant in replying to this Office action. Claim 23

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is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The examiner also notes that the two groupings are classified in different areas of the PTO and therefore a search burden exists.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. Applicant's election with traverse of group I in Paper No. 9 (08222003) is acknowledged. The traversal is on the ground(s) that the claims are not non-unitary and would not add any burden of search. This is not found persuasive because the claims are classified in different areas of the office (class 430 vs class 385) and are factually considered non-unitary under PCT practice on the basis of the search report of 14 March 2000 as evidenced by the citation of seven (7) "X" references.

The requirement is still deemed proper and is therefore made FINAL.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4,7-12,14,16,17,19 and 22-25 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Bjork et al. '652.

Bjork et al. '652 describes with respect to figure 4a and 4b, the laser ablation of the silica ( $\text{SiO}_2$ ) fiber, followed by the evaporation of a thin metal layer to form a polarizer. Figure 5 shows data from this polarizer when a 214 nm thick Al/W metal layer was used. The laser used is a carbon dioxide TEA laser having the properties described in column 4 at lines 25-60. The wavelength of the laser is 10.6 microns (10,600 nm). The disclosure with respect to figures 3a-c teaches couplers made from ablated fibers, which are fused. The used of a dye or other absorber applied to the fiber as a coating to enhance ablation is disclosed. (3/16-26). The ablation is stopped before reaching the core and this is determined by measuring the lowering of the power transmitted through the core of 0.1 to 0.3 dB. (4/1-9). Figure 1 shows the measurement of the optical characteristics using a laser and measuring the power during the process.

The applicant argues that although the reference teachings ablation of the cladding to near the core and measuring the power to detect the initial power drop to prevent etching of the core does not meet the claims. The examiner disagrees and notes that the optical property is not specified in the claims rejected under this heading. The measurement process appears to be continuous and the laser pulsed and therefore meets the plural measurement limitations of the

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added claims with measurements being made during and between the etching pulses. As the etching only takes place from one side, one polarization inherently will be effected more than the orthogonal one. The examiner adopts the position that different thicknesses (lesser thicknesses at the ends) are removed along the etched area. The examiner notes that forming a polarizer inherently changes the birefringence which is a measure the polarization based properties of an article. The measurement laser operating at 632.8 nm is a HeNe gas laser which inherently has a polarized output and is oriented 45 degrees to the metal film. (5/35-54). The applicant's arguments also fail to account for why the etchings of the cladding in the instant specification with respect to figures 2, 8 –10 have the described effect, but the etching of the cladding layer in the reference applied does not. The rejection stands.

10. Claims 1-4,7-12,14,16,17,19-20 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjork et al. '652.

It would have been obvious to one skilled in the art to modify the invention corresponding to the process illustrated in figures 3a-c or 4a and by adding a dye in a layer to increase the absorption based upon the disclosure to do so at column 3, lines 16-26 of the reference.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

11. Claims 1-12,14,16,17,19-20 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjork et al. '652, in view of Chang et al. '371.

Chang et al. '371 teaches the use of a metallic layer to acts as a mask to prevent melting of adjacent areas. (12/18-37, 13/29-52 and 14/44-15/24).

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It would have been obvious to one skilled in the art to modify the process of Bjork et al. '652 by using the masking process of Chang et al. '371 to reduce the thermal damage to areas adjacent to those being ablated and limit the areas ablated as taught by Chang et al. '371.

12. Claims 1-4,16,17 and 19 and 22-25 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Allen et al. '913.

Allen et al. '913 describe the use of carbon dioxide lasers (10.6 micron output) for forming taps in silica based optical fibers. (6/1-24 and 4/21-33). The examiner points to the measurement devices shown in the figures and the figures, which show clearly that only the cladding is etched. The measurement of the A1 and A2 light is disclosed.

The figures with the corresponding process clearly envision etching the cladding to form the finished article and refute the applicant's position. The rejection stands.

13. Claims 1-4,7-17, 19 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. '565, in view of Allen et al. '913 or Bjork et al. '652.

Jain et al. '565 teach the etching of optical fibers to allow electrodes to be placed near the optical core to allow poling of the optical fibers. This is followed by the deposition of the electrodes. This allows the polarization of the light to be changed. The use of laser etching is disclosed. (9/9/35-37) The formation of gratings using UV light is also disclosed. The monitoring of the formation of the grating using an ELED is disclosed in examples 1.

It would have been obvious to one skilled in the art to use the disclosed laser etching in the process of Jain et al. '565 as it is old and well known in the art for etchings optical fibers as taught by Allen et al. '913 or Bjork et al. '652 and does not require hazardous chemicals like chemical etchings or a vacuum chamber like ion etching.

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The applicant argues that Jain et al. '565 even combined with the other references fails to teach etching only the cladding to modify the properties of the optical waveguide. That position is entirely without merit as each of the references etches only the cladding and notes a change in the resulting characteristics of the waveguide. The argued position entirely ignores the facts set forth in the reference.

14. Claims 1-4, 7-12, 14 and 16-20 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Bjork et al. '652 or Allen et al. '913, in view of Lin '879.

Lin '879 teaches the functional equivalence of diode lasers, excimer lasers, YAG lasers and carbon dioxide lasers in laser etching optical components (ocular lenses) (4/5-18)

It would have been obvious to one skilled in the art to modify the processes of either Bjork et al. '652, Jelley et al. '900, Chiang et al. '211 or Allen et al. '913 by using other lasers known to be useful in the laser ablation of optics with a reasonable expectation of success based upon the disclosure of equivalence by Lin '879.

The rejection stands for the reasons above as no further arguments were directed at this rejection.

15 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period



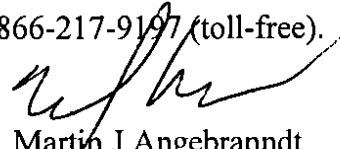
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebrannndt  
Primary Examiner  
Art Unit 1756

06/02/2004